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ABSTRACT

One in a series of core instructional materials for apprentices to use during the first or second years of apprentice-related subjects training, this booklet deals with basic safety. The first section consists of an outline of the content and scope of the core materials as well as a self-assessment pretest. Covered in the four instructional chapters included in the booklet are employer and employee roles and responsibilities for safety on the job, accident causes and prevention, accident reporting and recordkeeping, and safety laws. Each chapter contains an overview; an introduction and objectives; principles, examples, and applications; additional information; and self-test exercises. Appended to the booklet are answers to the self-assessment pretest, answers to the self-test exercises, a posttest, and answers to the posttest. (MN)

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BASIC SAFETY I

Apprentice Related Training Module

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CONSERVA, Inc.
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GLOSSARY

The words on this list are used in this booklet. Review the terms and learn the definitions. The meaning of the words in the text may not be the form of the word with which you are familiar.

Word/Terms

1. Accident—An unexpected or undesired event that interrupts work routines and often results in injury or loss.
2. Unsafe condition—Work conditions or factors in the work environment or situation that have the potential to cause an accident.
3. Unsafe action—Work processes or factors of human activity in the work situation that have the potential to cause an accident.

1. How To Use This Booklet

What Is This Series About?

Basic Safety I is one of ten booklets written as core instructional materials for apprentices to use during the first or second years of apprenticeship related subjects training. Nine of the booklets are about critical subject areas for apprentices, as determined by a national group of experts on apprenticeship and training. The tenth booklet introduces the other booklets and explains how to use the materials in the instructional setting.

The materials are designed to be used with other related subjects instructional materials. They can be employed in one of two ways: (1) the materials can be used as the total instructional materials package for some trades, in subjects such as basic science, measurement, and working in organizations; or (2) they can be used as supplementary, introductory or practice materials in subjects such as basic mathematics, safety and an introduction to apprenticeship.

The booklets are written in a self-instructional, self-paced format. They can be used either in instructor supervised or independent study arrangements. ***Each booklet and each chapter is written as a distinct unit and is addressed to a single major topic.*** This means that you or your instructor can select individual booklets or chapters without necessarily using every booklet or every chapter within a booklet.

The booklets emphasize application of facts, concepts and skills. Material is presented by means of written information, visual illustration and applied example. The discussion for most major topics also includes an application section that requires you as a learner to demonstrate what you are learning. In addition, each chapter contains a section entitled Self-Test Exercises that contains questions, problems and exercises for you to work through as a final application of the knowledge or skill and to show that you have mastered the materials.

The titles of the booklets in the core materials are:

1. *A Basic Core Curriculum*
2. *Introduction to Apprenticeship*
3. *Basic Mathematics*
4. *Basic Safety I*
5. *Basic Safety II*
6. *Basic Measurement*
7. *Sketching, Drawing and Blueprint Reading*
8. *Basic Physical Science*
9. *Working In Organizations*
10. *Interpersonal Skills and Communication*

What Is This Booklet About?

Safety is fundamental to working effectively and efficiently. Worker health and survival as well as corporate profitability are dependent upon working safely. Many jobs, however, are hazardous and involve personal risk. Compounding risk is the tendency of everyone to become less cautious as once-new tasks, even dangerous ones, become routine. Gradually, unsafe actions and unsafe working conditions can evolve until eventually an accident occurs. When accidents occur, they often cause personal and corporate loss—sometimes even permanent loss. However, accidents are preventable and avoidable. If you know and discharge your safety responsibilities, if you obey the rules, if you report accidents and injuries and if you know and observe the law, you can eliminate accidents.

This booklet is about safety and accident prevention. The specific topics covered in this booklet are:

1. Safety Roles and Responsibilities
2. Accident Causes and Prevention
3. Accident Reporting and Record Keeping
4. Safety Laws

When you have completed this booklet, you should read *Basic Safety II* to learn specific ways of dealing with typical work hazards.

What Must I Do To Complete My Work In This Booklet?

Working your way through this booklet will require you to read the text, to answer the questions, to perform the exercises and to complete the Pretest and Posttest instruments. Expect to spend about five hours working through the materials. The only resources you need to complete your work in this booklet are: (1) a copy of the booklet; (2) a pencil or pen; and (3) about five hours of time.

The materials are written in a self-instructional, programmed format. You may work through the text, examples, and questions at your own pace and leisure. You need not complete your work in the booklet at one sitting.

Each chapter in the booklet is devoted to a single skill, competency or unit of knowledge. The general format of the chapters is similar, with the following parts.

1. A *chapter overview* containing all the necessary information you need to know in order to work through the chapter.
2. An *introduction* describing the knowledge or skill and the instructional objectives for the information.
3. *Principles, examples, and applications* presenting and explaining the content as well as offering you practice opportunities to apply the information.
4. Additional *sources of information.*
5. A *Self-Test Exercise* for applying the information under consideration.

This booklet concludes with an Appendix that contains the answers to the Pretest, the Self-Test Exercises from each chapter and the Posttest.

How Much Do I Know About The Subject As I Begin?

Begin your work in *Basic Safety I* by completing the self-assessment Pretest that follows. When you have completed the Pretest as directed in the assessment instructions and have finished reading the other

material in this introductory section, continue your work in this booklet, one chapter at a time. Begin with Chapter 2 unless the results of your self-assessment indicate that you should do otherwise.

In each chapter, do the following:

1. Read:
   - Background information.
   - Steps and procedures for performing skilled activities and explanations of major points and ideas.
   - Examples illustrating use of information, performance or skills, or application of material.
2. Consider the questions and exercises in the text. Work the questions and check your answers.
3. When you believe that you have mastered the material, take the Self-Test at the end of the chapter.
4. Check your answers with those provided in the Appendix at the end of the booklet. If you achieve at least the minimum acceptable score, move to the next chapter. If your score is below acceptable levels, work through the chapter again.

Self-Assessment Pretest

Directions: The self-assessment will help you focus on specific strengths and limitations of your safety knowledge and skills. Select the best answer for each question and record it in the appropriate space. After you have worked through the entire Pretest, score your test following the directions at the bottom of the test.

1. Define accident. Answer: _____
2. Explain "All accidents are preventable."
   Answer: _____
3. Give an example of an "unsafe condition" for moving materials.
   Answer: _____
4. Check each of the following items that is a major fire hazard on the job.
   a. Friction
   b. Electrical connections
   c. Smoking
   d. Heated materials
   e. Hot surfaces
5. Name four ways lighting can be a problem in the work area:
   a. _____
   b. _____
   c. _____
   d. _____
6. What is the most important reason for reporting an accident or injury?
   Answer: _____

List two of the most important facts you need to recall about accidents and injuries on the job.

7. _____
8. _____

9. What is the purpose of the Occupational Safety and Health Act?
   Answer: _____
   _____

10. What are the three responsibilities of the Occupational Safety and Health Administration?
    a. _____
    b. _____
    c. _____

11. What two laws provide benefits for work-related disabilities?
    a. _____
    b. _____

12. Which of the following is *not* your responsibility under the Occupational Safety and Health Act?
    a. Read the OSHA poster at your job site
    b. Report hazardous conditions to your supervisor
    c. Wear protective equipment
    d. Report a work-related injury to the area OSHA office

Scoring: Check your answers with those provided in the Appendix. Mark each answer right or wrong. Then, grouping the answers into the sets of questions listed below, count the number correct for each set. Enter the amount in the appropriate spot on the chapter overview chart that introduces each chapter.

Questions 1-5, number correct is _____.
Questions 6-8, number correct is _____.
Questions 9-12, number correct is _____.

2. Safety: Roles and Responsibilities

Chapter Overview

Purpose:	To introduce each apprentice to his or her role, responsibilities and general rules for safety at work and to make apprentices aware of basic responsibilities of employers.
Preassessment Score:	Regardless of your Pretest score, work through this chapter.
Prerequisites:	Chapter 1 of this booklet.
Resources:	Time—at least 30 minutes to completion. Materials—pencil.
Performance Statement:	At the conclusion of your work in this chapter you will identify and explain your roles and responsibilities in working safely.
Performance Measure:	A fifteen-minute paper-and-pencil Posttest to be taken after completing the entire booklet.
Standards:	To be successful, you must answer at least 90% of the Posttest items correctly.
Activities:	1. Read the text, examples and illustrations and commit information to memory. 2. Work questions, examples and problems. 3. Complete and check the Self-Test Exercises and Posttest.

Introduction and Objectives

Safety is a shared responsibility between employer and employee. It will not happen unless both cooperate with each other to make job safety a fact. If the employer shirks his or her responsibilities, apprentices and journeymen may be pushed for production at the risk of serious personal injury. If the employee shirks his or her responsibilities, the individual worker as well as coworkers are at risk for serious injury. Further, the specific job and the employer's reputation, insurance rate, and profit margin are at risk when employees are careless about hazards.

This chapter presents background information on safety roles and responsibilities. When you have completed your work in this chapter, you will demonstrate your understanding of the material by being able to:

1. Identify and explain employer responsibilities and roles concerning on-the-job safety;
2. Recall and explain employee—apprentice and journeyman—roles and responsibilities concerning on-the-job safety; and
3. Recall a brief set of general safety rules to follow—always.

Principles, Examples and Applications

Employer Responsibilities

Employers want you to work safely on the job. They do not want you to have an accident or incur an injury. Injuries are harmful to you personally. In addition, they are harmful to employers because when injuries occur they result in decreased production, employee lost time, increased insurance and production costs, and increased bookkeeping. In the interest of preventing accidents, employers assume a variety of responsibilities relative to safety. Employers must exert leadership and effort to ensure that all workers attend to safety issues. Among the safety-related activities you should expect of employers are:

1. *Policy and Emphasis*—Employers must emphasize the need for safety. Emphasis takes the form of corporate policy for certain production schedules, expected procedures for performing specific tasks, safety campaigns and awards, insurance, and other procedures that indicate to employees exactly how critical safety is to the welfare of each individual and the company as a whole. Most companies will create a safety program to emphasize its importance. Often a corporate safety officer will direct the program.
2. *Training*—Before employees can work safely, they must be shown the safe and proper way to perform a task. Training must be provided as or before a new employee begins work, as a current employee changes jobs within the company, or as someone begins work on a newly created job. The idea is to increase awareness of safety, to form job work habits, and to point out clearly the correct and incorrect ways of performing. Among the specific topics that should be addressed during safety training are:
   - Safety rules for company, plant and department.
   - Safety rules for tasks including procedures, precautions, safeguards, rules for protection on each job.
   - Safety rules regarding specific job hazards and how to avoid them.
   - First-aid and emergency procedures (practices and equipment).
   - OSHA responsibilities and rights for employers and employees.
   - Reporting rules for accidents, injuries and hazards.
   - Employee participation in safety program.
3. *Awareness*—Employers must emphasize safety to employees continually. Posters and slogans that increase safety awareness often are posted. Graphs and charts illustrating the numbers of accident and injury free days raise safety awareness. Posters imploring employees to work smart and work safely raise awareness. Memos regarding recent accidents as well as yearly summaries have the same effect. Ideally, employers should use a variety of techniques to stimulate awareness.

4. *Hazard Inspection*—Employers must regularly conduct job safety analyses of all shops and all jobs. The hazard analysis forces consideration of worker practices, job procedures, equipment/tool use and work area layout. Unsafe practices can and must be changed, once they are identified.
5. *Sharing of Authority*—Employers can encourage safety by requiring that employees share part of the administrative and decision-making burden regarding accident prevention. For example, through the formation of plant and shop safety committees, employees assume some of the responsibility for their own welfare. If you have no opportunity to participate in such a program, take advantage of the opportunity to work for the improved safety of yourself and fellow workers.
6. *Work Planning*—Employers (and employees) must think through jobs and tasks and plan the safest way to complete the work. By thinking ahead, many potential problems can be identified and eliminated. Proper time, equipment and materials can be provided and proper safeguards can be taken.
7. *Supervision*—Mid-level managers, foremen and supervisors are responsible for implementing company policy concerning safety. This means that they oversee daily work activity, enact corporate decisions about safety policies and relay information concerning safety "upward and downward" within the organization. These personnel share the day-to-day responsibility for safety with you.

Employee Responsibilities

Just as the employer has incentives and responsibilities concerning job safety, so too, do you as an employee. Your incentives or reasons for avoiding accident and injury are identical to those of the employer, except that they are more personally directed. For example, lost productivity is a problem for both you and the employer. For the employer, it means lost profit and increased overhead costs; for you, it means lost time for work, a lower wage, and possible permanent injury and difficulty. Among your more important safety responsibilities as an employee are the following:

1. *Learn and Obey Rules*—Usually the job you hold has been worked for several years somewhere in industry and perhaps even in the company in which you work. Supervisors and journeymen have learned important "do's and don'ts" about how best to do the job. Listen, observe and follow their instructions. Always obey rules and regulations for shop practices. Pay attention to safety considerations as your more important task. Be especially careful to attend to safety instruction in related instruction classes as well as on-the-job settings. Safety does not just happen. You must work at it to be successful.
2. *Consult Procedures and Experience*—If you do not know how to do something safely, stop your activity and consult the procedures manual, rules or your more experienced foreman or instructor. Ignorance is overcome by learning. However, it's stupidity not ignorance if you try to do something without knowing how, or even what tool to use.
3. *Watch for Hazards*—Be cautious and keep your mind on your work. You must recognize safety hazards and report them to the appropriate officials. Many companies depend on employee diligence and assistance to identify and change practices and procedures that can be done more effectively—safely and productively. Think about what you are doing and as you have ideas, make them known.
4. *Report Accidents and Injuries*—You must participate in accident and injury reporting and investigation. Remember, sometimes insurance benefits to the injured party depend on

your participation. Equally important, accurate accident reports are the best means of pointing up practices and procedures that need to be altered for additional safety.

5. *Become Involved*—Do your part for safety. Encourage other workers to act and work safely. Point out safety problems and hazardous practices to fellow workers. Try to set a good example for younger, less experienced workers. Further, if you have an opportunity to participate on shop, department or company safety committees, use that opportunity to improve the working conditions for yourself and your fellow employees.
6. *Perform as Trained*—The most important responsibility you have regarding safety is to perform your work tasks as trained. Use the correct tools to perform your tasks. Allow enough time to finish safely. Avoid distractions. Do not operate machinery or drive while taking medication or if intoxicated. Always follow operating procedures for using equipment and perform tasks in accord with training specifications. Also, be sure you clean up your work area. Clutter and scraps are unsafe conditions.

General Safety Rules

There are several general safety rules that apply to virtually every work situation and setting. *Learn and follow these rules.* Most are common sense and fall under the category of being aware. Remember, your productive life is at stake.

1. Use the right tool for the job and use it correctly.
2. Practice good housekeeping and be neat. Clear your work area of trash and debris. Keep work surfaces clear of foreign substances.
3. Be cautious, avoid distractions and keep your mind on what you are doing. Always pay attention to your activities and responsibilities. Do not assume that the tools, machines and equipment that you must use are in perfect working order.
4. Handle all materials carefully and appropriately, regardless of how you will use them.
5. Watch out for fellow workers. Encourage their own safety. Be ever careful of unsafe actions and unsafe conditions. When you spot a problem, act to correct it.
6. *Know and use specific safety rules and approved work procedures.* Follow the rules; they have been tested over time. Further, if you do not know something, ask for directions. Do not proceed by trial and blunder.

Additional Information

For additional information about safety rules and responsibilities, read the safety information from your employer, industry and/or union. Each source will have information that will help you to work more safely and effectively.

Self-Test Exercises

Answer the following questions and check your answers with those in the Appendix. If you answer three of the items correctly, continue the work in the next chapter. If you answer less than three items correctly, repeat your work in the chapter.

1. What is your most critical safety responsibility as an employee?
   Answer: _____
2. List three employer responsibilities regarding worker safety in the workplace.
   a. _____
   b. _____
   c. _____
3. List four general safety rules that apply to virtually every job.
   a. _____
   b. _____
   c. _____
   d. _____
4. Reread the section of this chapter that outlines your safety responsibilities as an employee. Commit this information to memory.

3. Causes and Prevention of Accidents

Chapter Overview

Purpose:	To insure that each apprentice knows common causes of accidents and injury and can suggest ways to prevent them from occuring.
Preassessment Score:	Write in the following space the number of correct answers from Pretest questions 1-5: _____ . If you answered all five correctly, skip to Chapter 4. If you answered one or more questions incorrectly, continue working through this chapter.
Prerequisites:	Chapters 1 and 2 of this booklet.
Resources:	Time—at least 90 minutes to completion. Materials—pencil.
Performance Statement:	At the conclusion of your work in this chapter you will recognize and identify common causes of accidents and suggest ways to prevent the problem.
Performance Measure:	A fifteen-minute paper-and-pencil Posttest to be taken after completing the entire booklet.
Standards:	To be successful, you must answer at least 90% of the Posttest items correctly.
Activities:	1. Read the text, examples and illustrations and commit information to memory. 2. Work questions, examples and problems. 3. Complete and check the Self-Test Exercises and Posttest.

Principles, Examples and Applications

Accidents by Definition Are . . .

An accident is an unexpected and undesired event that often involves person injuries and property losses. Accidents interrupt work routines and hold the potential for injury and loss even though injury and loss may not occur. Accidents are *caused*; they do not occur without *reason*. More importantly, the reasons for accidents can be identified and similar conditions and activities can be altered in order to eliminate the potential of future and recurring injury and loss through accidents. The causes of accidents are either

unsafe conditions or unsafe actions. Unsafe conditions include things such as oil spots, poor light location, improper location of equipment, hazardous layout of work area to traffic, inappropriate materials storage, vibrations and so forth. Unsafe actions or activities include things such as ignoring potential causes of accidents, failing to report hazards, using tools incorrectly and so forth.

Actually accidents are caused by combinations of unsafe actions and unsafe conditions. These are not separate phenomena, but rather two sides of the same coin. Both unsafe conditions and unsafe acts have the same basic cause—they are both created at some point by improper action or lack of action by workers. Therefore, if accidents are to be reduced, the human causes of accidents must be reduced.

Examples of all-too-typical unsafe acts and conditions are illustrated in Figure 1. Note that each problem has a human cause somewhere in its history and that each is correctable with effort.

Figure 1. Sample Unsafe Conditions and Actions

Unsafe Conditions

- Lack of proper protective clothing and gear
- Unrealistic/inappropriate production schedules
- Unguarded tools and equipment
- Defective/antiquated tools and equipment
- Poorly layed-out work areas and storage space
- Clutter from poor housekeeping
- Lack of safety training, emphasis and policy
- Improper lighting, ventilation and noise control
- Failure to provide supervision
- Failure to heighten safety awareness
- Unnecessary exposure to hazardous substances
- Poor design
- Temperature and humidity extremes

Unsafe Actions

- Removing safety devices
- Using the wrong tools or using defective tools
- Using tools/equipment without authority or training
- Following improper work procedures
- Failure to spot, report and remove hazards
- Failure to provide, attend to or adhere to supervision
- Distractions/inattention while working
- Rushing to complete job . . . or using equipment at improper speed
- Failure to take safety seriously
- Fatigue
- Attempts to repair equipment while it is in use
- Failure to observe rules for lifting, fire safety, materials handling and so forth
- Wearing improper clothing

The causes of accidents often are called hazards. Hazards are classified either as safety hazards or health hazards. Safety hazards cause accidents that usually involve injury through electrical, thermal or mechanical conditions. Examples of safety hazards include faulty electrical wiring, unguarded tools and equipment, and cluttered or poorly designed work areas. Equipment that is poorly designed, improperly maintained, or inappropriately installed is a prime source of safety hazards.

Health hazards cause illness. Examples of health hazards include coal dust, vapors from solvents, and high noise levels. Often—particularly in the case of vapors—a hazard that is a health hazard also is a safety hazard. For example, if you were to inhale benzene vapor over a long period of time, you would become ill. If you were to do this in a closed area without adequate ventilation and particularly around a pilot light, the vapor could explode causing serious burns. Thus, benzene vapor is both a health hazard and a safety hazard.

Hazards and Accident Prevention

Accidents and injury can be avoided or prevented if safety is a primary concern, focus and consideration in your work. Through accident investigation, job safety analysis, shop design/layout, use of published information, training and common sense you can work safely and accident free. Some of the responsibility—for accident investigation, shop layout, job safety analysis and training—rests with the employer. Employers also prevent accidents by acting to correct unsafe conditions and actions, especially conditions dealing with physical surroundings like lighting and ventilation. Responsibility for preventing accidents also rests with you as an employee. By paying attention and by using your senses of seeing, feeling, smelling and hearing, together with your good judgment about what to do when you detect a problem, you can avoid and prevent accidents. The responsibility to be alert, to pay attention, and to act when you judge something is amiss resides with you. So does the need to learn appropriate procedures and to work safely.

Employers and workers together can help to prevent accidents through developing the safest possible work procedures, by making the routines known through training and by practicing in everyday work activities what has been learned in training. The federal government, in an effort to promote ever-increasing job safety, has developed information about the most serious, frequently abused, sure-to-cause a problem safety hazards. The hazards, together with a general idea of what to look for in identifying each hazard and how to correct it are presented in the following pages. Note that this information is intended to increase your general awareness and understanding. Consult the code for your particular trade to learn more specific information about specific hazards and corrective actions with which you must be concerned.

Hazard 1: **Condition—Poor housekeeping and the failure to keep working areas clean and orderly.**

Indictors of problem:

a. Oil, water or other substances on floor.
b. Tools, materials, supplies equipment or trash "left out" or not placed in storage area.
c. Accumulation of oil rags, paints and other flammable materials.
d. Personal belongings in the work area.

Specific corrective actions to follow:

a. Keep floors of work area clean, dry and free of clutter and trash.
b. Remove loose boards, protruding objects and holes from flooring.
c. Store materials in storage areas; organize storage areas.
d. Clean and straighten work area at completion of each shift.
e. Provide false floors and dry standing areas when "wet processes" are used in work.
f. Provide lockers for personal belongings.

Hazard 2: **Condition—Blocked, inappropriate, unmarked or inadequate exits.**

Indicators of problem:

a. Unmarked exits and unmarked and confusing doorways and halls.
b. Materials stacked or strewn about in exit path.
c. Exits with locks that are difficult to open from inside.
d. Small or poorly placed exit doors.

Specific corrective actions to follow:

a. Post large (6" high letters) signs over and around exits; if exit way is not apparent, place sign with arrow.
b. Mark hallways and doors that would be confused as exits with sign "Not an Exit"
c. Illuminate exit sign, either with light on surface or internal to sign.
d. Remove all obstacles from pathway to and through exit; check periodically.
e. Install no locking or fastening device that would hinder leaving building.
f. Install sufficient numbers and size of exits for building and numbers of workers.

Hazard 3: **Condition—Missing or inappropriate protective equipment.**

Indicators of problem:

a. Lack of hard hats, gloves and boots on workers where construction and materials moving are going on.
b. Lack of respirators, masks, goggles and/or ear plugs where there is danger of flying objects, inhalents or excessive noise.
c. Loose fitting clothing or clothing of inappropriate fabric on workers.

Specific corrective actions to follow:

a. Provide and use appropriate protective devices to prevent bodily injury.
b. Encourage other workers to use appropriate equipment; demand and obey company policy.

Hazard 4: **Condition—Missing guards on work areas of machines and tools.**

Indicator of problem:

a. Lack of guards on moving parts of machines for motions of:
Rotation (drills or rods with set screws); butting or shearing mechanisms (lathes, milling machines and abrasive wheels); inrunning nip points (saws and planers); screw and worm mechanism (conveyors); and forming or bending mechanisms (presses and forging machines).

Specific corrective actions to follow:

a. Replace and/or maintain guards on all tools and machines.
b. Routinely inspect tools to be certain that guards are in place and operable.
c. Check and adjust position of work rests and lathes, milling machines, abrasive wheels and so forth.

Hazard 5: **Condition—Inappropriate or missing guards on power transmission apparatus.**

Indicators of problem:

a. Frayed or slick belts, ropes or chains.
b. Lack of guards around belts and gears from power source through drive train.

Specific corrective actions to follow:

a. Check periodically to be sure belts, ropes and chains are strong and are adjusted to proper tautness.
b. Insure that all gears remain completely enclosed or guarded on all sides, especially the surface areas.
c. Construct guards of metal, pipe and wire mesh to enclose all belt, rope and chain guards up to a height of seven feet.

Hazard 6: **Condition—Improper storage or handling of flammable or combustible material.**

Indicators of problem:

a. Uncovered or partially covered containers holding combustible material.
b. Containers built of inappropriate materials.
c. Containers holding too great a capacity of combustible materials.
d. Unlabeled containers or containers stored haphazardly.

Specific corrective actions to follow:

a. Use container tanks for storage of such materials of 60 gallon size or smaller.
b. Keep combustible and flammable materials in covered containers.
c. Use only containers built of the appropriate materials and able to withstand required weight and pressure.
d. Label containers and store them systematically; do not smoke in area!

Hazard 7: **Condition—Improper storage or handling of compressed gases.**

Indicators of problem:

a. Haphazard storage of containers of compressed gas without labels; close to heat source; in or close to passageway or elevator; without warning signs; in wet or unventilated areas; and so forth.

Specific corrective actions to follow:

a. Store gas cylinders in well protected, dry, ventilated location at least 20 feet from combustible materials.
b. Post signs saying danger and no smoking.
c. Systemically label and store containers. Place out-of-way of elevators, passageways, heat sources and places where cylinder could be hit by passing or falling object.

Hazard 8: **Condition—Improper maintenance and use of climbing and hoisting equipment.**

Indicators of problem:

a. Use of broken ladders or ladders of improper height.
b. Use of ladders with rungs too widely spaced.
c. Using ladders or hoists in areas of improper clearance.

Specific corrective actions to follow:

a. Make sure all ladders are in good repair, with tight hardware and braces.
b. Check to be certain that ladders have all rungs and rails and that rungs' distance is uniform and does not exceed 12 inches.
c. Allow at least 7 inches clearance behind the ladder and from 30 to 36 inches clearance on the sides.
d. Avoid working under ladders and hoists.
e. Clear all protruding objects from climbing or hoisting path.
f. Make sure pullies and chains are in proper working order on hoists.

Hazard 9: **Condition—Improper physical surroundings in work area.**

Indicators of problem:

a. Work area is too dark or has shadows.
b. Very bright lights that cause employees to squint.
c. Work area with glares and shiny surfaces.
d. Reports of eye strain, squinting and headaches.
e. Extremes or inappropriate heat, cold or humidity in work area.

Specific corrective actions to follow:

a. Adjust lights so that specific work area is well illuminated.
b. Remove glaring surfaces, relocate lights or add screens so that light does not bounce off surface.
c. Adjust contrast of background to internal light source of lighted dials so they can be read.
d. Remove or replace flickering lights.
e. Install/use temperature controls.

Hazard 10: **Condition—Noise levels exceeding safe limits.**

Indicators of problem:

a. Noise levels in excess of 90 decibels over an 8-hour shift.
b. Difficulty hearing directions or talking in work area.
c. Difficulty in thinking or concentrating in work area.

Specific corrective actions to follow:

a. Provide and use personal protective equipment to shield noise.
b. Add and use silencers to machines.
c. Separate, space out and/or shield loud machines from one another.
d. Install sound proofing materials.

Hazard 11: **Condition—Failure to use appropriate care with electricity.**

Indicators of problem:

a. Missing ground plugs and/or frayed or improperly spliced wires.
b. Overloaded circuits and shorts
c. Conducter wires or cords in traffic areas.
d. Unguarded electrical equipment or equipment in heavily trafficked area.
e. Tools unmarked as to insulation or grounding.

Specific corrective actions to follow:

a. Inspect and replace worn or damaged materials with safety-approved materials.
b. Routinely inspect (and correct) all electrical installations for conformity with code.
c. Make certain all tools are properly grounded, that wires are insulated and circuits not overloaded.
d. Construct and use guards on electrical equipment and limit access to area.
e. Work for fixed rather than flexible wiring.
f. Report any exposed "live" parts of machines, tools or circuits.

Hazard 12: **Condition—Failure to observe necessary fire safety rules.**

Indicators of problem:

a. Electrical problems as noted in Hazard #11.
b. Hot surfaces and overheated materials.
c. Unnecessary or unguarded friction.
d. Smoking.

Specific corrective actions to follow:

a. Check, correct or replace faulty electrical wiring, tools and so forth.
b. Establish and use smoking areas; post "no smoking" signs in high risk areas.
c. Use temperature gauges and alarms in working with heated substances and shield self and materials from hot surfaces.
d. Periodically check lubrication of bearings and shafts as well as belt tension on belt drives.
e. Know your fire protection plan and rules.
f. Use common sense, good judgment and awareness of problem to prevent fires.

Hazard 13: **Condition—Inappropriate handling and moving of materials.**

Indicators of problem:

a. Lifting with back rather than legs.
b. Leaving power-operated industrial trucks on and unattended.
c. Work, traffic and storage areas that are cluttered.
d. Indiscriminate use of hand trucks.
e. Unguarded conveyors.

Specific corrective actions to follow:

a. Clear path and storage areas before moving load.
b. Lift with legs and shoulders; keep chin tucked, back straight and feet under load.
c. Work behind (uphill) hand trucks on inclined surfaces.
d. Shut down power-operated industrial truck if operator is 25 feet or more from vehicle or out of sight of vehicle.

Each of these conditions is a potential cause of an accident. Learn the warning signals and act to eliminate the hazard! Be especially mindful of hazards associated with electricity, fire and materials handling. These problems are frequent causes of accidents on the job. *Each can cause permanent and costly damage to YOU and YOUR COMPANY.*

Additional Information

For additional information about accidents and how to prevent them, read materials prepared and provided by your specific trade or industry. Other useful information is available from the Occupational Safety and Health Administration. Also you may wish to read:

Manual of Accident Prevention in Construction. Washington, DC: The Associated General Contractors of America, Inc., 1949.

J. V. Grimaldi and R. H. Simonds. *Safety Management.* Homewood, IL: Richard D. Irwin, Inc., 1975.

Self-Test Exercises

Answer the following questions and check your answers with those in the Appendix. If you answer five of the items correctly, continue work in the next chapter. If you answer less than five of the items correctly, repeat your work in this chapter.

1. Define "accident."
   Answer: _____
2. Why are accidents avoidable or preventable?
3. List two responsibilities you have as a worker related to preventing accidents:
   a. _____
   b. _____
4. Suggest at least three corrective actions to practice good housekeeping in the work area.
   a. _____
   b. _____
   c. _____
5. Name three types of motion parts and machines that require guards.
   a. _____
   b. _____
   c. _____

4. Accident Report/Record Keeping

Chapter Overview

Purpose:	To insure that every apprentice understands the importance of reporting accidents and the type of information required on reports.
Preassessment Score:	Write in the following space the number of correct answers from Pretest questions 6-8: _____ . If you answered all three correctly, skip to Chapter 5. If you answered one or more questions incorrectly, continue working through this chapter.
Prerequisites:	Chapters 1, 2 and 3 of this booklet.
Resources:	Time—at least 30 minutes to completion. Materials—pencil.
Performance Statement:	At the conclusion of your work in this chapter you will identify and explain the importance and fundamentals of accident reporting.
Performance Measure:	A fifteen-minute paper-and-pencil Posttest to be taken after completing the entire booklet.
Standards:	To be successful, you must answer at least 90% of the Posttest items correctly.
Activities:	1. Read the text, examples and illustrations and commit information to memory. 2. Work questions, examples and problems. 3. Complete and check the Self-Test Exercises and Posttest.

Introduction and Objectives

If and when an accident and/or injury occurs on the job, report it immediately. Even if the injury seems small and insignificant take care of the injury *and* report it. Remember, if not treated properly, strains and sprains can become chronic and painful; scratches and scrapes can become infected and serious. If not reported promptly, the injury may be only partially covered by insurance, even if it becomes serious. Further, by not reporting an accident or injury, you fail to provide information to your employer about risks and hazards on the job that can be corrected.

This chapter is about accident reporting and record keeping from the apprentice point of view. Your supervisor and the company safety officer will perform accident investigations; that is not your responsibility. However, you need to be prepared to help them complete their work. When you have finished your work in this chapter you will demonstrate your understanding of the information by being able to:

1. Identify and explain the importance of reporting accidents and injury; and
2. Identify and explain general information necessary for accident reporting.

Principles, Examples and Applications

Reasons for Investigation

There are several important reasons for reporting and investigating accidents. The most important reason is to determine the cause of the accident. If you can determine the cause or causes of the accident, then you can find ways to make improvements and prevent similar accidents from occurring in the future.

A second reason for reporting and investigating accidents is to assist in answering questions of insurance, productivity, compensation and litigation. Reporting of an injury within a certain number of hours is required to ensure complete health coverage of the injured worker. Workmen's Compensation for lost time requires prompt reporting of both the injury and the accident situation. Further, prompt reporting helps the company make decisions concerning how to deal with potential changes in productivity caused by accidents.

A third reason for reporting and investigating accidents and injuries is to help call attention in the shop to the issues of safety and health. By reporting and considering accidents, you help increase awareness about the importance of safety on the job. It helps to alert workers to potential problems and issues.

Your Role in Reporting Accidents and Injuries

Your role in reporting accidents and injuries as an apprentice and journeyman is to be prompt, accurate and thorough. Your first responsibility should you be injured or should you come upon an injured worker is to administer emergency first aid, if needed, to the injured worker. Then call for help or assistance and notify the appropriate authorities.

Once you have done these several things, you need to think about what you have observed—the facts about the accident and the injury. Often the injured party—you or others—can provide the most important information about what happened. Also, usually there are bystanders who witnessed the accident and can provide insight about what happened. Remember each witness may have a slightly different view. The most important factors you must think about are:

- Who was injured?
- What caused the accident and/or injury?
- Where did the injury and/or accident take place?
- Which machines, tools and equipment were involved?
- When in the work process did the accident occur?
- How serious is the injury and what part of the body incurred the injury?

Pay particular attention to when the injury occurred, where it occurred and who was doing what as the injury occurred. Your ability to describe in detail the injury and the cause of the injury will be of great value to officials in their efforts to determine and eliminate the cause of the accident. The idea is not to find fault but rather to describe accurately, in detail, what happened. Try to remember what process and

equipment were involved and how operations were being performed. Also, if a safety violation occurred in causing the accident, report it. Remember, ultimately, the safety of all workers including yourself depends on careful observations of safety rules and careful reporting and study of accidents that occur in order to avoid similar accidents in the future.

Sometimes, particularly if another worker has been injured seriously, your report and/or description of how an injury occurred may be important in diagnosing and treating the injury. This makes worker behavior before and during the accident an important fact to remember. It is better to err by providing too much rather than too little information.

Questions you need to ask yourself as you think about the facts you have observed include:

1. What was the injured person doing when the accident occurred? Was it something done every day—and was it being done in the typical and expected way?
2. Was the proper equipment being used? Was the equipment being used correctly? Was the equipment in good shape?
3. Were there safety instructions and guidelines about the tasks being performed? Were appropriate procedures being followed?
4. What was the physical condition of the area in which the accident occurred? Were unsafe conditions noticeable?
5. What actions might prevent the accident and/or injury in the future? Are there general safeguards that might help?

As an apprentice or journeyman, you will not have to investigate accidents on the job. Instead, a supervisor or a corporate safety officer is responsible for investigating accidents and filing the report. The specific reporting procedure will be particular to your company. However, you should expect your information to be used to file an individual report and claim as well as to be used as part of the annual log and summary of occupational illnesses and accidents.

Additional Information

For additional information about reporting accidents you should read the specific materials of your employer. Also, you may wish to read any of a variety of publications such as *Techniques of Accident Investigation for an Effective Safety and Health Program* prepared by OSHA, the Occupational Safety and Health Administration.

Self-Test Exercises

Answer the following questions and check your answers with those in the Appendix. If you answer three of the items correctly, continue work in the next chapter. If you answer less than three items, repeat your work in this chapter.

1. List the three most critical reasons for reporting accidents and injuries:
   a. _____
   b. _____
   c. _____
2. Why should minor injuries receive the same attention as major injuries?
   Answer: _____
3. What is the most important set of facts to sort out and recall clearly concerning an accident and injury?
   Answer: _____

5. Safety Laws

Chapter Overview

Purpose:	To develop a working knowledge of laws governing occupational safety and health. You will learn some of the functions and provisions of federal and state legislation, including the Occupational Safety and Health Act, the Social Security Act and Workmen's Compensation laws.
Preassessment Score:	Write in the following space the number of correct answers from Pretest questions 9-12: _____ . If you answered all four correctly, take the Posttest in the Appendix. If you answered one or more questions incorrectly, continue working through this chapter.
Prerequisites:	Chapter 1 of this booklet.
Resources:	Time—at least 60 minutes to completion. Materials—pencil, paper.
Performance Statement:	At the conclusion of your work in this chapter you will recognize the provisions of several of the more important laws regarding job safety.
Performance Measure:	A fifteen-minute paper-and-pencil Posttest, to be taken after completing the entire booklet.
Standards:	To be successful, you must answer at least 90% of the Posttest items correctly.
Activities:	1. Read the text, examples and illustrations and commit information to memory. 2. Work the answers, examples and problems. 3. Complete and check the Self-Test Exercises and Posttest.

Introduction and Objectives

Until recently, there was little legislation that required employers to provide a safe and health workplace. This changed in 1970 when Congress passed the Occupational Safety and Health Act. Under this law, you have certain *rights* to a safe work environment and various *responsibilities* to protect those rights.

There also are laws that protect you should a work-related injury or illness occur. State Workmen's Compensation Acts provide benefits to workers disabled on the job or to families of workers killed on the job. The Social Security Act provides similar types of benefits.

It is important that you be aware of the provisions of these laws so that you can exercise your rights and receive benefits you are entitled to. This chapter looks at the legislation and what it means to you. By completing your work in this chapter, you will be able to:

1. Explain the purpose and provisions of the Occupational Safety and Health act and laws providing compensation for disabilities.
2. Identify employers' responsibilities under these laws.
3. Identify your rights and responsibilities under these laws.

Principles, Examples and Applications

The Occupational Safety and Health Act

The purpose of the Occupational Safety and Health Act is ". . . to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources." Think about what that means for a minute: To protect ***every working man and woman*** from such hazards as faulty equipment, poor workplace design, contaminated air, cancer-causing materials, and any number of other dangerous situations. This is an ambitious and worthwhile goal.

Government Agencies

To fulfill this legislative goal, legislators created some new government agencies. The agency with primary responsibility for worker safety was created in the Department of Labor and is called the Occupational Safety and Health Administration (OSHA). OSHA was given the responsibility to:*

- Encourage employers and employees to reduce hazards in the workplace and to implement new or to improve existing safety and health programs;
- Establish "separate but dependent responsibilities and rights" for employers and employees for the achievement of better safety and health conditions;
- Establish reporting and record keeping procedures to monitor job-related injuries and illnesses;
- Develop mandatory job safety and health standards and enforce them effectively; and
- Encourage the States to assume the fullest responsibility for establishing and administering their own occupational safety and health programs, which must be "at least as effective as" the Federal program.

OSHA carries out its responsibilities by developing and publishing standards for safe and health working conditions. OSHA also has developed standard record forms to record and report occupational injuries and illnesses:

- OSHA No. 100—Log of Occupational Injuries and Illnesses
- OSHA No. 101—Supplemental Records
- OSHA No. 102—Annual Summary

Employers are required to maintain these or comparable report forms.

A third major function of OSHA is to inspect worksites to see that employers are following standards, maintaining records and fulfilling their other responsibilities for worker safety and health. OSHA

*From: National Safety Council. Accident Prevention Manual for Industrial Operations. Seventh Edition. Chicago, IL: National Safety Council, 1974.

inspects firms on a random basis, but also carries out high-priority inspections of situations where it believes that workers are in immediate danger, where catastrophes have occurred, where employees have complained about a situation or in specific high-risk occupations or industries. If an employer is in violation of safety rules, citations can be imposed. Penalties can range from a warning to fines as large as $10,000 per violation and imprisonment.

OSHA also provides on-site consultation to assist employers in identifying and correcting hazardous conditions. There are provisions for small businesses to obtain loans to comply with safety and health standards. Finally, OSHA encourages states to take over their responsibilities for standards-setting, administration and enforcement of safety programs. OSHA will provide 50 percent of the costs for a state to perform these functions.

Other federal government agencies also have a role in OSHA's functions. The law created the National Institute for Occupational Safety and Health (NIOSH) in the Department of Health, Education and Welfare (now the Department of Health and Human Services). NIOSH is the research and education arm of OSHA. NIOSH has three major functions.*

a. Develop and establish recommended occupational safety and health standards.

b. Conduct research experiments and demonstrations related to occupational safety and health.

c. Conduct educational programs to provide an adequate supply of qualified personnel to carry out the purposes of the Occupational Safety and Health Act.

NIOSH also helps employers directly by providing on-site hazard evaluation, providing technical information and providing technical assistance in accident prevention, industrial hygiene and occupational medicine.

A third body formed by the Occupational Safety and Health Act is the Occupational Safety and Health Review Commission. This commission reviews cases where employers contest actions made by OSHA. For example, if a company disagrees with a penalty imposed by OSHA, they can contest this before the Review Commission.

The final agency involved in administering the law is the Bureau of Labor Statistics (BLS). BLS collects data from employers on injuries and illnesses.

Who Is Covered?

Most workers are covered by the Occupational Safety and Health Act. The law applies to all employers who have one or more employees in a business that affects commerce. However, the law specifically excludes some employers. If you work for any of the following, you are *not* covered by the Occupational Safety and Health Act:

1. Federal, state or local governments.
2. Religious organizations, if your job duties are religious in nature.
3. Self-employed.
4. Family-owned and operated farms.
5. Organizations or occupations covered by other federal safety and health laws or standards.

Employer Rights and Responsibilities

Under the law, employers have certain responsibilities to provide you a safe and healthy workplace. They meet their responsibilities by complying with general and specific standards, rules and regulations. Specific employer responsibilities include the following:*

*From: U.S. Department of Labor. *All About OSHA*, (OSHA 2056). Washington, DC: U.S. Government Printing Office, 1977.

- Be familiar with mandatory OSHA standards and make copies available to employees for review upon request.
- Inform all employees about OSHA.
- Examine workplace conditions to make sure they conform to applicable safety and health standards.
- Remove or guard hazards.
- Make sure employees have and use safe tools and equipment (including personal protective equipment) and that such equipment is properly maintained).
- Use color codes, posters, labels, or signs to warn employees of potential hazards.
- Establish or update operating procedures and communicate them so that employees follow safety and health requirements for their own protection.
- Provide medical examinations when required by OSHA standards.
- Report to the nearest OSHA office, within 48 hours, the occurrence of any employment accident which is fatal to one or more employees or which results in the hospitalization of five or more employees.
- Keep OSHA-required records of work-related injuries and illnesses, and post the annual summary during the entire month of February each year. (This applies to employers with eight or more employees.)
- Post, at a prominent location within the workplace, the OSHA poster (OSHA 2203) informing employees of their rights and responsibilities. (In States operating OSHA-approved job safety and health programs, the State's equivalent poster and/or OSHA 2203 may be required.)
- Cooperate with the OSHA compliance officer by furnishing names of authorized employee representatives who may be asked to accompany the compliance officer during the inspection. (If none, the compliance officer will consult with a reasonable number of employees concerning safety and health in the workplace.)
- Not discriminate against employees who properly exercise their rights under the Act.
- Post OSHA citations of apparent violations of standards or of the general duty clause at or near the worksite involved. Each citation, or copy thereof, shall remain posted until the violation has been abated, or for 3 working days, whichever is longer.
- Abate cited violations within the prescribed period.

Employers also have certain rights as set forth in the Occupational Safety and Health Act. These include the following:*

- Seek advice and off-site consultation as needed by writing, calling, or visiting the nearest OSHA office. (OSHA will not inspect merely because an employer requests assistance.)
- Be active in your industry association's involvement in job safety and health.
- Request and receive proper identification of the OSHA compliance officer prior to inspection of the workplace.
- Be advised by the compliance officer of the reason for an inspection.
- Have an opening and closing conference with the compliance officer.

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*From: U.S. Department of Labor. *All About OSHA*, (OSHA 2056). Washington, DC: U.S. Government Printing Office, 1977.

- File a Notice of Contest with the nearest OSHA area director within 15 working days of receipt of a notice of citation and proposed penalty.
- Apply to OSHA for a temporary variance from a standard if unable to comply because of the unavailability of materials, equipment, or personnel to make necessary changes within the required time.
- Apply to OSHA for permanent variance from a standard if you can furnish proof that your facilities or method of operation provide employee protection that is at least as effective as that required by the standard.
- Take an active role in developing job safety and health standards through participation in OSHA Standards Advisory Committees, through nationally recognized standards setting organizations, and through evidence and views presented in writing or at hearings.
- Avail yourself, if you are a small business employer, of long-term loans through the Small Business Administration (SBA) to help bring your establishment into compliance, either before or after an OSHA inspection.
- Be assured of the confidentiality of any trade secrets observed by an OSHA compliance officer during an inspection.

Employee Rights and Responsibilities

The most important thing that the Occupational Safety and Health Act brings to you is the right to a workplace free from health and safety hazards. To protect this right you have to fulfill certain responsibilities. These responsibilities are:*

- Read the OSHA poster at the jobsite.
- Comply with all applicable OSHA standards.
- Follow all employer safety and health rules and regulations, and wear or use prescribed protective equipment while engaged in work.
- Report hazardous conditions to the supervisor.
- Report any job-related injury or illness to the employer, and seek treatment promptly.
- Cooperate with OSHA compliance officer conducting an inspection if he or she inquires about safety and health conditions in your workplace.
- Exercise your rights under the Act in a responsible manner.

Your specific safety and health rights are to:*

- Review copies of any of the OSHA standards, rules, regulations, and requirements that the employer should have available at the workplace.
- Request information from your employer on safety and health hazards in the area, on precautions that may be taken, and on procedures to be followed if an employee is involved in an accident or exposed to toxic substances.
- Request (in writing) the OSHA area director to conduct an inspection if you believe hazardous conditions or violation of standards exist in your workplace.
- Have your name withheld from your employer, upon request to OSHA, if you file a written and signed complaint.

*From: U.S. Department of Labor. *All About OSHA*, (OSHA 2056). Washington, DC: U.S. Government Printing Office, 1977.

- Be advised of OSHA actions regarding your complaint and have an informal review, if requested, of any decision not to make an inspection or not to issue a citation.
- File a complaint to OSHA within 30 days if you believe you have been discriminated against, discharged, demoted, or otherwise penalized because of asserting an employee right under the Act, and be notified by OSHA of its determination within 90 days of filing.
- Have the authorized employee representative where you work accompany the OSHA compliance officer during the inspection tour.
- Respond to questions from the OSHA compliance officer, particularly if there is not an authorized employee representative accompanying the compliance officer.
- Observe any monitoring or measuring of hazardous materials and have the right to access to records on those materials, as specified under the Act.
- Request a closing discussion with the compliance officer following an inspection.
- Submit a written request to the National Institute for Occupational Safety and Health (NIOSH) for information on whether any substance in your workplace has potential toxic effects in the concentrations being used, and have your name withheld from your employer if you so request.
- Object to the abatement period set in the citation issued to your employer by writing to the OSHA area director within 15 working days of the issuance of the citation.
- Be notified by your employer if he or she applies for a variance from an OSHA standard, testify at a variance hearing, and appeal the final decision if you disagree with it.
- Submit information or comment to OSHA on the issuance, modification, or revocation of OSHA standards, and request a public hearing.

Feel free to exercise these rights without fear of punishment from your employer. That also is your right as well as your responsibility to your own and fellow workers' safety and health.

Benefits for Occupational Illness or Injury

Despite the attempts of OSHA and employers to protect workers, accidents still occur. If a worker does become sick or disabled on the job, there are laws that provide benefits.

Each state, Puerto Rico and the District of Columbia have *Workmen's Compensation Acts.* In general, these laws provide benefits to workers who incur work-related injuries or illnesses. Laws typically provide the following:

1. Payment of lost salaries and wages when an employee is unable to work.
2. Payment of medical expenses.
3. Payments to dependents in case a death occurs.
4. Medical and vocational rehabilitation so that a disabled employee is able to return to work.
5. Incentives for preventing accidents.

Provisions of the Workmen's Compensation laws vary by state. Also, the types of jobs that are covered are not the same for every state. Check with your employer and state labor department to find out the types of benefits to which you are entitled.

A second law that provides benefits should you become disabled is the Social Security Act. Social security is most well known for its retirement benefits. But social security also provides disability benefits. If you are disabled because of accident or illness and unable to work, you can receive payments from your social security account if you are eligible. You must have worked 5 of the previous 10 years to be eligible for the benefits. Special provisions are made for younger workers, blind people and people disabled from childhood.

Additional Information

You can look at the following publications for additional information on safety laws. For the most current provisions of the laws, you should write or call your state labor department or local Social Security Office.

U.S. Department of Labor. *All About OSHA, OSHA 2056.* Washington, DC: U.S. Government Printing Office, 1977, 0-251-202.

B. G. Gooch, L. Carrier and J. Huck. *Work: Pathway to independence.* Chicago, IL: American Technical Society, 1979.

National Safety Council. *Accident Prevention Manual for Industrial Operations.* Chicago, IL: National Safety Council, 1974.

Self-Test Exercises

Answer the following questions and check your answers with those in the Appendix. If you answer four of the items correctly, proceed with the Posttest in the Appendix. If you answer less than four items correctly, repeat your work in the chapter.

1. Which of the following laws provide money for accident prevention?
   a. The Occupational Safety and Health Act
   b. Workmen's Compensation Acts
   c. The Social Security Act
2. List three of your responsibilities under the Occupational Safety and Health Act.
   a. _____
   b. _____
   c. _____
3. What should you do if you feel you are forced to work in an unsafe workplace?
   Answer: _____
   _____
4. What are the three benefits provided by Workmen's Compensation laws?
   a. _____
   b. _____
   c. _____

6. Appendix

Self-Assessment Pretest Answers

1. Definition must include three factors:
   a. Unexpected event;
   b. That interrupts work routine; and
   c. Often causes injury or loss.
2. All accidents result from human action or inaction. Given proper consideration, human, situational and environmental factors can be arranged to eliminate unsafe actions and conditions and thus avoid accidents.
3. Unsafe conditions for moving materials would include any of the following:
   a. Slick or uneven floor surface;
   b. Cluttered pathway or storage area for materials; or
   c. Confined space for transporting materials that prevents them from being moved using proper techniques.
4. All five items should be checked as major on-the-job fire hazards.
5. It can be:
   a. Too dark;
   b. Shadows;
   c. Glaring; or
   d. Too bright.
6. In order to determine the cause and find ways to prevent it from reoccurring.
7. Any two of the following:
& a. Who was injured?
8. b. What caused the accident or injury?
   c. Where did the accident or injury take place?
   d. Which machines, tools and equipment were involved?
   e. When in the work process did the accident occur?
   f. How serious is the injury and what part of the body was harmed?
9. To assure that everybody has a safe workplace.
10. Any three of the following:
    a. Encourage employers and employees to improve safety and health.
    b. Establish safety and health rights and responsibilities for employers and employees.
    c. Establish reporting and recordkeeping procedures.
    d. Develop and enforce safety and health standards.
    e. Encourage states to assume OSHA responsibilities.
11. a. Workmen's Compensation Laws
    b. Social Security Act
12. d

Self-Test Exercise Answers

Chapter 2: Safety: Roles and Responsibilities

1. To perform and work in accord with your training.
2. Any three of the following:
   a. Policy and Emphasis
   b. Training
   c. Awareness
   d. Hazard Inspection
   e. Sharing of Responsibility
   f. Supervision
   g. Work Planning
3. Any four of the following:
   a. Use right tool for job and do so correctly
   b. Practice good housekeeping in work area
   c. Be cautious, avoid distraction and keep your mind on your work
   d. Handle all materials carefully and appropriately
   e. Watch out for fellow workers
   f. Know and use specific safety rules and approved work procedures

Chapter 3: Causes and Prevention of Accidents

1. Definition must include three factors:
   a. Unexpected event;
   b. That interrupts work routine; and
   c. Often causes injury or loss.
2. All accidents result from human action or inaction. Given proper considerations, hazards can be eliminated or avoided by acting to do away with unsafe conditions and unsafe actions.
3. Any two of the following:
   a. Pay attention to what you are doing
   b. Notice hazards (report them)
   c. Act to correct, remove or avoid hazards
   d. Follow training specifications
   e. Take safety seriously
4. Any three of the following items:
   a. Keep floors clean, dry and free of trash.
   b. Store materials in storage areas.
   c. Clean and straighten work area at completion of each shift.
   d. Provide false floors and dry standing areas when "wet processes" are used in work.
   e. Provide lockers for personal belongings.
   f. Remove loose boards, protruding objects and holes in flooring.
5. Any three of the following items:
   a. Rotations
   b. Cutting or shearing
   c. Inrunning nip points
   d. Screw and worm mechanisms
   e. Forming and bending mechanisms

Chapter 4: Accident Reporting/Recordkeeping

1. a. Determine and eliminate the cause of the injury and/or accident.
   b. Assist in questions of insurance, productivity, compensation and litigation.
   c. Call attention to safety issues and encourage worker safety.
2. Minor injuries can become major through infection and recurrence. Also, reporting it will help change the conditions to avoid future injury.
3. How, when and where the accident occurred.

Chapter 5: Safety Laws

1. a and b
2. Any three of the following:
   a. Read the OSHA poster at jobsite.
   b. Comply with all applicable OSHA standards.
   c. Follow all employer safety and health rules and regulations, and wear or use prescribed protective equipment while engaged in work.
   d. Report hazardous conditions to the supervisor.
   e. Report any job-related injury or illness to the employer, and seek treatment promptly.
   f. Cooperation with OSHA compliance officer conducting an inspection if he or she inquires about safety and health conditions in your workplace.
   g. Exercise your rights under the Act in a responsible manner.
3. Request the OSHA area director to conduct an inspection. File a complaint if you are discriminated against or penalized.
4. Any three of the following:
   a. Payment of salaries and wages.
   b. Payment of medical expenses.
   c. Payments to dependents.
   d. Medical and vocational rehabilitation.
   e. Incentives for preventing accidents.

Posttest

Directions: Answer the following questions. After completing all of the questions, check your answers with the answers that follow. If you score 90 percent or better, you have successfully completed Basic Safety 1. If you score less than 90 percent, repeat the portions of the module with which you had difficulty.

1. Define "accident."
   Answer: _____
2. Explain how accidents are preventable or avoidable.
   Answer: _____
3. How are unsafe actions and unsafe conditions alike?
   Answer: _____

4. List five general safety rules that apply to every job.
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____

5. What is the most important reason for reporting an accident and/or injury?
   Answer: _____

6. In thinking about the what, who and when of accidents, list three of the important questions you should ask yourself about the facts you observed.
   a. _____
   b. _____
   c. _____

7. What do health hazards cause?
   Answer: _____

8. In general what are two of your major responsibilities in preventing accidents?
   a. _____
   b. _____

9. Name two common problems in using electricity.
   a. _____
   b. _____

10. Suggest a corrective action for each of the following fire hazards:
    a. Smoking: Remedy _____
    b. Friction: Remedy _____

11. How should exits be marked?
    Answer: _____

12. Which of the following is *not* an employer's responsibility under the Occupational Safety and Health Act?
    a. Keep records of work-related injuries.
    b. Inspect the workplace using OSHA forms on an annual basis.
    c. Post the OSHA poster in a prominent location.
    d. Remove or guard hazards.

13. If you file a complaint with OSHA, are you able to have your name withheld from your employer?
    Answer: _____

14. List three of your responsibilities under OSHA:
    a. _____
    b. _____
    c. _____

15. How long must you have worked to be eligible for Social Security benefits? _____

Posttest Answers

1. Definition must include three factors:
   a. Unexpected event;
   b. That interrupts work routine; and
   c. Often causes injury or loss.
2. Given careful consideration, hazards can be eliminated or avoided.
3. Ultimately, unsafe conditions and unsafe actions both are a result of human action or inaction. Both can be eliminated through human action.
4. List five of the following six rules (score 1 point for 2 correct, score 2 points for 5 correct):
   a. Use right tool for job and use it correctly.
   b. Practice good housekeeping in work area.
   c. Be cautious, avoid distractions and keep your mind on your work.
   d. Handle all materials carefully and appropriately.
   e. Watch out for fellow workers.
   f. Know and use specific safety rules and approved work procedures.
5. To determine the cause of the accident and move to correct the situation to prevent it from happening again.
6. Any three of the following five questions (1 point for 1 correct, 2 points for 3 correct):
   a. What was the injured person doing when the accident occurred?
   b. Was the proper equipment being used, and used correctly?
   c. Was there safety instruction and were there guidelines about tasks being performed?
   d. What was the physical condition of the area in which the accident occurred?
   e. What actions might prevent the accident and/or injury in the future.
7. Illness
8. Any two of the following five items:
   a. Pay attention to what you are doing.
   b. Notice hazards.
   c. Act to correct, remove and avoid hazards.
   d. Follow training specifications.
   e. Take safety seriously.
9. Any two of the following items:
   a. Overloaded circuits and shorts.
   b. Missing grounded plugs and/or frayed insulation and/or improperly spliced wires.
   c. Unmarked tools as to insulation or grounding.
   d. Unguarded electrical equipment.
   e. Conductor wires, cords or equipment in heavily trafficked area.
10. Smoking: Establish smoking areas and post "no smoking" signs.
    Friction: Periodically check lubrication of bearings and shafts as well as the tension on belt drives.
11. They should be visible or should have arrows directing users to them; they should have signs with letters at least six inches high; the signs should be illuminated.
12. b
13. Yes

14. Any three of the following (count 1 point for first answer and a second point for the next two answers):
    a. Read the OSHA poster at jobsite.
    b. Comply with all applicable OSHA standards.
    c. Follow all employer safety and health rules and regulations, and wear or use prescribed protective equipment while engaged in work.
    d. Report hazardous conditions to the supervisor.
    e. Report any job-related injury or illness to the employer, and seek treatment promptly.
    f. Cooperate with OSHA compliance officer conducting an inspection if he or she inquires about safety and health conditions in your workplace.
    g. Exercise your rights under the Act in a responsible manner.
15. Five of the previous ten years.

Scoring:

Questions #1, 2, 3, 5, 7, 11, 12, 13 and 15 each count one (1) point.

Questions #4, 6, 8, 9, 10 and 14 each count two (2) points, one for each of the two parts or as indicated on the answer sheet.

You must score a minimum of 18 points to complete your work in this module successfully. If necessary, repeat your work in various chapters of the booklet.